



December 21, 2015

Reference No. 086165-03-14

Mr. Phil Richard
Wisconsin Department of Natural Resources
875 S 4th Avenue
Park Falls, Wisconsin 54552

Dear Phil:

**Re: Monthly Status Report – November 2015
Penta Wood Products Superfund Site
Siren, Wisconsin**

GHD Services Inc. (GHD) has prepared this monthly status report for the period of November 2015 for the Penta Wood Products Superfund Site (Site). The Site plan is shown on Figure 1. The project budget and costs are summarized in the following tables:

- Table 1 summarizes the overall project costs with a comparison of all costs (original purchase order scope of work plus change order revised scope of work) against the original purchase order budget.
- Table 2 summarizes Phase 02 (GHD accounting phase) costs associated with the original purchase order and scope of work.
- Table 3 summarizes Phase 03 (GHD accounting phase) costs associated with the change order and revised scope of work (November 2015 through December 2016).
- Table 4 summarizes Phase 04 (GHD accounting phase) costs associated with the change order and revised scope of work (January 2017 through December 2017)

1. Progress Made This Reporting Period

Phase 02-Task 01 Routine groundwater extraction and treatment, LNAPL recovery and bioventing system operation, equipment maintenance and repair

- The following tasks were completed as part of the routine remediation system operation, monitoring, and maintenance:
 - Operating, monitoring, and maintaining the groundwater and LNAPL extraction remediation system at pumping rates as summarized in Table 5
 - Backwashing the “pre-filter” granular activated carbon (GAC) unit
 - Changing bag filters

- Collecting compliance water samples and coordinating laboratory analyses as summarized in Table 6
- Other work completed included:
 - Project management and coordination
 - Preparing and submitting the Wastewater Discharge Monitoring Long Report for October 2015
 - Measuring groundwater and LNAPL levels in the unconfined (upper level) extraction wells and manually recovering LNAPL as summarized in Table 7
 - Providing notification with a corrective action to WDNR regarding a non-compliance associated with the remediation system water treatment system discharge
- LNAPL recovery was performed in the unconfined extraction wells containing LNAPL. LNAPL skimming pumps were utilized in two extraction wells (EW06 and EW10) containing significant amounts of LNAPL. Manual bailing was performed to recover LNAPL in the remaining extraction wells containing LNAPL (EW05, EW12, and EW14). LNAPL was not detected in the remaining extraction wells (EW02, EW04, and EW13). LNAPL recovery data is summarized in Table 7.
- The Long-Term Response Action Operation and Maintenance Plan – Addendum No. 1 was finalized.
- The groundwater extraction and treatment system was shut down on November 23, 2015 to initiate the remediation system shutdown pilot study as conditionally approved by the United States Environmental Protection Agency (USEPA) in a letter dated November 17, 2015. GHD subcontractor costs/invoices included under Task 01 of this invoice:
 - General trash disposal (October 2015, Republic Services)

**Phase 02-Task 02 *Waste characterization and coordination
(groundwater, LNAPL, GAC, filter cake)***

- No costs were billed to this task in the current invoice.

Phase 02-Task 03 *Waste disposal*

- No costs were billed to this task in the current invoice.

**Phase 02-Task 04 *Housekeeping and grounds keeping
(building, access roads, paths, CAMU, etc.)***

- Housekeeping tasks were completed in the building.

Phase 02-Task 05 *Monthly bioventing and soil gas monitoring (17 wells)*

- No costs were billed to this task in the current invoice.
- The biovent system was not operated in November 2015, in accordance with normal protocol. The biovent system will remain off during the pilot study.

Phase 02-Task 06 Treatment system influent sampling and analysis (monthly, PCP)

- The monthly influent sample was collected on November 2, 2015 for laboratory analysis of pentachlorophenol (PCP). The analytical data is summarized in Table 6. Influent PCP was detected at a concentration of 1,100 micrograms per liter (µg/L). The laboratory report is included in Attachment A.
- A water sample was collected from the effluent of the lead carbon unit on November 2, 2015 to determine whether a carbon exchange was required. PCP was detected at a concentration of 2.7 µg/L indicating that a carbon exchange was not necessary at that time. The analytical data is summarized in Table 6. The laboratory report is included in Attachment A.
- This invoice includes laboratory analytical costs for influent sampling conducted on November 2, 2015. Labor associated with the sampling is billed under Phase 02-Task 01, consistent with the project budget.

Phase 02-Task 07 Treatment system effluent sampling and analysis (weekly, PCP)

- The weekly effluent samples were collected on November 2, 10, and 17, 2015 for laboratory analysis of PCP. The analytical data is summarized in Table 6. The average effluent PCP concentration of 0.116 µg/L during November 2015 slightly exceeded the substantive WPDES permit limit of 0.1 µg/L. The laboratory reports are included in Attachment A.
- This invoice includes laboratory analytical costs for effluent samples collected on October 19 and 27, 2015 and November 2, 10, and 17, 2015. Labor associated with the sampling is billed under Phase 02-Task 01, consistent with the project budget.

**Phase 02-Task 08 Treatment system effluent sampling and analysis
(monthly, WI-DRO, naphthalene)**

- A monthly effluent sample was collected on November 2, 2015 for laboratory analysis of Wisconsin-Diesel Range Organics (WI-DRO) and naphthalene. The analytical data is summarized in Table 6. The data indicate that the system treated and discharged water in compliance with the substantive WPDES permit limits for naphthalene and WI-DRO. The laboratory report is included in Attachment A.
- This invoice includes laboratory analytical costs associated with the effluent sample collected on the November 2, 2015. Labor associated with the sampling is billed under Phase 02-Task 01, consistent with the project budget.

**Phase 02-Task 09 Treatment system effluent sampling and analysis
(quarterly, metals, chloride)**

- Quarterly effluent sampling and analysis was not required in November 2015.
- This invoice includes laboratory analytical costs associated with the effluent sample collected on the October 19, 2015.

**Phase 02-Task 10 *Treatment system effluent sampling and analysis
(annually, BTEX, phenol, dioxin)***

- No costs were billed to this task in the current invoice. Annual effluent sampling and analysis was not required in November 2015.

Phase 02-Task 11 *Semiannual groundwater and LNAPL level monitoring*

- No costs were billed to this task in the current invoice. Groundwater and LNAPL level monitoring as part of the semiannual groundwater sampling events was not required in November 2015.

**Phase 02-Task 12 *Annual groundwater monitoring well sampling
(15 wells for PCP, BTEX, naphthalene, TAL metals, and
natural attenuation indicator parameters)***

- Annual groundwater sampling was not required in November 2015. The annual groundwater sample analytical data from October 2015 was evaluated.

**Phase 02-Task 13 *Semiannual groundwater monitoring well sampling
(5 wells for PCP, BTEX, naphthalene, TAL metals, and
natural attenuation indicator parameters)***

- No costs were billed to this task in the current invoice. Semiannual groundwater sampling was not required in November 2015.

**Phase 02-Task 14 *Semiannual residential well sampling
(6 private wells and onsite water supply well for PCP, BTEX and
naphthalene)***

- Notification letters were issued to the residents providing the sampling results from October 2015..

Phase 02-Task 15 *Semi-annual reporting*

- Portions of the Semiannual Report were prepared for the period between July and December 2015.

Phase 02-Task 16 *Monthly status reporting*

- The Monthly Status Report – October 2015 was prepared and subsequently submitted on December 1, 2015.
- GHD participated in the monthly project status conference call with WDNR and USEPA on November 23, 2015.
- The October 2015 Wastewater Discharge Monitoring Long Report was prepared and submitted electronically in the WDNR Web Access Management System (WAMS) on November 20, 2015.

Phase 02-Task 17 *Regulatory Communications*

- No costs were billed to this task in the current invoice.

Phase 02-Task 18 Site Safety Plan

- No costs were billed to this task in the current invoice.

Phase 02-Task 19 Site QA/QC Plan

- No costs were billed to this task in the current invoice.

Phase 02-Task 20 Alternate remedy recommendation

- A conference call was held with WDNR, USEPA, and GHD on November 5, 2015 to discuss USEPA's preliminary comments on the Draft Remediation System Shutdown Pilot Study Work Plan, which primarily included a developing a baseline groundwater sampling scope of work, a bio-trap study, a contingency plan for restarting the remediation system, and a pilot study schedule. The work plan was subsequently revised to address USEPA's comments and a draft work plan resubmitted on November 13, 2015.

Phase 02-Task 21 WPDES permit update

- No costs were billed to this task in the current invoice.

Phase 02-Task 22 Heating/ventilation system repairs

- No costs were billed to this task in the current invoice.

Phase 02-Task 23 Well repairs and surveying

- No costs were billed to this task in the current invoice.

Phase 03-Task 01 Well repairs

- Well repairs were completed between November 23 and December 1, 2015. A summary of completed well repairs is included in Table 8. The drilling subcontractor costs will be included with a subsequent invoice.

Phase 03-Task 02 Drilling and well installation

- Drilling and well installation of monitoring wells MW29, MW30, and MW31 and drilling of borehole SB1 and was completed between November 23 and December 2, 2015.

Phase 03-Task 03 System decommissioning

- Work was completed in preparation of the remediation system decommissioning and cleaning activities scheduled to begin in January 2016.

Phase 03-Task 04 Site safety plan

- Work was completed to update of the site-specific health and safety plan.

Phase 03-Task 05 Site QA/QC plan

- No costs were billed to this task in the current invoice.

Phase 03-Task 06 *Waste characterization*

- No costs were billed to this task in the current invoice.

Phase 03-Task 07 *Waste disposal*

- No costs were billed to this task in the current invoice.

Phase 03-Task 08 *Housekeeping and grounds keeping*

- No costs were billed to this task in the current invoice.

Phase 03-Task 09 *Quarterly groundwater/LNAPL level monitoring*

- No costs were billed to this task in the current invoice. The next quarterly groundwater/LNAPL level monitoring event is scheduled to be conducted during April 2016

Phase 03-Task 10 *Baseline groundwater well sampling*

- No costs were billed to this task in the current invoice. Baseline groundwater well sampling is scheduled to be conducted during April 2016.

Phase 03-Task 11 *Quarterly groundwater well sampling*

- No costs were billed to this task in the current invoice. The next quarterly groundwater well sampling event is scheduled to be conducted in July 2016.

Phase 03-Task 12 *Semiannual Residential Well Sampling*

- No costs were billed to this task in the current invoice. The next semiannual residential well sampling event is scheduled to be conducted in April 2016.

Phase 03-Task 13 *Quarterly reporting*

- No costs were billed to this task in the current invoice. A semiannual report will be submitted in January 2016 to document the period between July and December 2015.

Phase 03-Task 14 *Monthly Reporting*

- No costs were billed to this task in the current invoice.

Phase 03-Task 15 *Regulatory communications*

- No costs were billed to this task in the current invoice.

Phase 03-Task 16 *Microcosm and bio-trap study*

- Soil samples were collected from boreholes SB1 and MW29 for the microcosm study. A groundwater sample was also collected from borehole SB1 for the microcosm study. A groundwater sample will be collected from well MW29 during April 2016 for the microcosm study. The bio-trap study is scheduled to begin during April 2016.

Phase 03-Task 17 *Shallow soil and sediment investigation*

- No costs were billed to this task in the current invoice.

Phase 04-Tasks 01 through 09

- No costs will be billed to these tasks until 2017.

2. Problems Resolved

- A written report was submitted to WDNR and USEPA on December 1, 2015 discussing the water treatment system discharge non-compliance and a corrective action. The groundwater extraction system was shut down on November 23, 2015, as approved by the USEPA to begin the remediation system shutdown pilot study. The system is expected to remain temporarily shutdown through 2019 during the pilot study. If the pilot study results are favorable, WDNR will request that the USEPA authorize that the system remain shutdown permanently. If the system is required to be restarted, the corrective action will include installing new granular activated carbon into all of the treatment vessels at the facility. Subsequent compliance sample analytical data would be evaluated to assess other potential system adjustments are appropriate to comply with the substantive permit requirements.

3. Problem Areas and Recommended Solutions

- Minor staining/discoloration, which may indicate the start of corrosion, was observed on the top and bottom welds of the carbon vessels during the carbon exchange in January 2015. No repairs were required. A thorough inspection of the carbon vessel interior lining will be conducted when the carbon is removed during January 2016.
- The motor that operates the gas-fired furnace to heat the building is inoperable and requires repair. Since the remediation system will not operate for the foreseeable future, furnace repairs/replacement will not be completed.
- The groundwater extraction pump in extraction well EW03 stopped operating during February 2015. The pump was removed during December 2015 and significant pitting in the riser piping and pump connection was observed. If future corrective actions indicate additional pumping is required, the riser piping will be replaced.

4. Deliverables Submitted

- Long-Term Response Action Operation and Maintenance Plan – Addendum No. 1 (November 9, 2015)
- Draft Remediation System Shut Down Pilot Study Work Plan (November 13, 2015)
- October 2015 Wastewater Discharge Monitoring Long Report (November 20, 2015)
- Residential Well Sampling Results letters (November 20, 2015)

- Monthly Status Report – October 2015 (December 1, 2015)
- Remediation System Water Treatment Discharge Non-Compliance (December 1, 2015)

5. Activities Planned Next Reporting Period

- Prepare and submit the Monthly Status Report – December 2015.
- Participate in the monthly status conference call.
- Update the Site Safety Plan.
- Survey top of casing elevations at all wells,
- Complete system decommissioning
- Complete waste characterization, profiling, and disposal

6. Key Personnel Changes

- Personnel changes were not necessary.

7. Subcontractor Services

GHD has retained the following subcontractors to provide services at the Site:

- North Shore Environmental Construction, Inc. – system decommissioning and waste management and disposal
- Maurer Power – potential remediation system electrical repair/service
- Evoqua Water Treatment Technologies LLC – carbon supply and change out
- Alar Chemical Sales – diatomaceous earth supply
- Applied Air Systems – air compressor routine service and potential repairs
- Anderson Pump and Process – bag filter supply
- A-1 Septic – septic tank service
- Austin Lake Landscaping – mowing
- Republic Services – trash disposal
- Moritz's Lawn Care – snow plowing
- Vadose Remediation Technologies – absorbent polymer sheeting supply to line spent carbon sacks
- HC Building Inspection Services – building inspection to evaluate heating system efficiency
- Field Environmental Instruments, Inc. – environmental field equipment supply
- Nardini Fire Equipment Co., Inc. – fire extinguisher inspection

- C3D Testing Company – backflow preventer inspection
- FCX Performance – extraction well flow meter supplies (O-rings)
- Cascade Drilling, LP – installation of additional monitoring wells
- Signarama – No trespassing signage for site

8. Travel

- To/from the Site for remediation system operation and modification

9. Laboratories

- GHD submitted all samples in November 2015 to TestAmerica Laboratories in North Canton, Ohio and Pittsburgh, Pennsylvania.

10. Project Performance

- Compliance sampling indicated that the November 2015 monthly average PCP effluent concentration was slightly above the substantive WPDES discharge permit limit.
- With the exception of two minor remediation system shutdowns due to power outages, the daily groundwater extraction rates were maintained at approximately 28 gallons per minute (gpm).
- Approximately 11.0 gallons of LNAPL were recovered during November 2015. A total of approximately 380.7 gallons of LNAPL have been recovered since the system modification in October 2014.

Should you have questions, please do not hesitate to contact us.

Sincerely,

GHD



Tim Ree

TB/sb/23

Encl.

cc: Judy Fassbender, WDNR Madison (via email)
 David Swimm, WDNR Madison (via email)
 John Robinson, WDNR Wausau (via email)
 Gary Edelstein, WDNR Madison (via email)
 Tim Panzer, WDNR Madison (via email)
 Ron Frehner, GHD (via email)
 Brian Sandberg, GHD (via email)
 Pete Storlie, GHD (via email)
 Linda Martin, USEPA (via email)

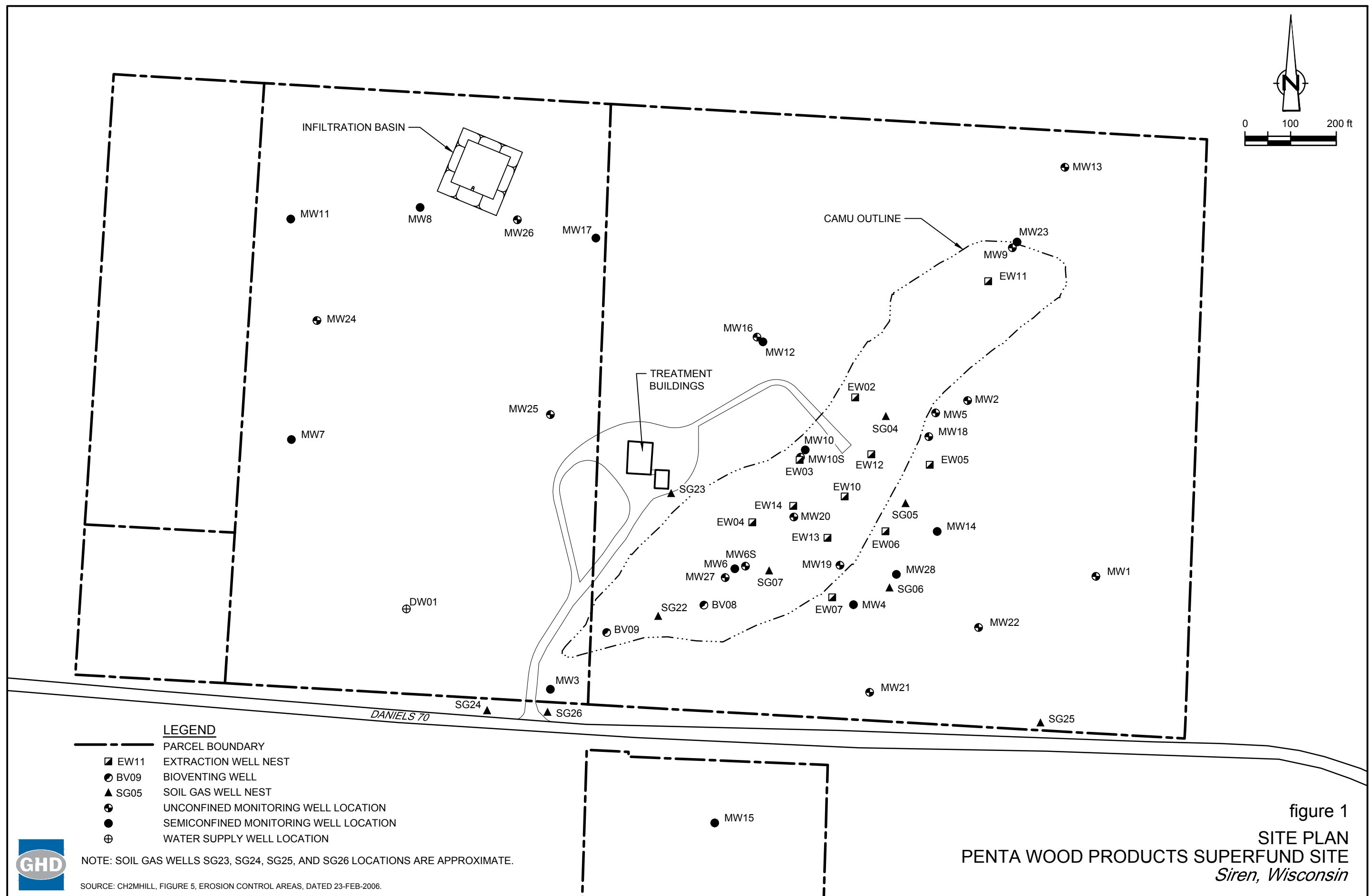


Table 1

**Budget Summary
Penta Wood Products Superfund Site
Siren, Wisconsin**

GHD Project Number 086165

Purchase Order

Phase	Description	Purchase Order Budget
02	Purchase Order (Table 2)	\$ 1,271,421.94
Purchase Order Total		\$ 1,271,421.94

Project Costs

Current Invoice Cost (through 11/29/2015)	Previous Invoiced Cost	Total Invoiced Cost (through 11/29/2015)	Purchase Order Budget Remaining (through 11/29/2015)
\$ 24,607.79	\$ 142,198.11	\$ 166,805.90	\$ 1,104,616.04
\$ 24,607.79	\$ 142,198.11	\$ 166,805.90	\$ 1,104,616.04

Change Order

Phase	Description	Change Order Budget
03	2015-2016 Change Order (Table 3)	\$ 751,912.27
04	2017 Change Order (Table 4)	\$ 140,152.84
Change Order Total		\$ 892,065.11

Project Costs

Current Invoice Cost (through 11/29/2015)	Previous Invoiced Cost	Total Invoiced Cost (through 11/29/2015)	Change Order Budget Remaining (through 11/29/2015)
\$ 9,143.53	\$ -	\$ 9,143.53	\$ 742,768.74
\$ -	\$ -	\$ -	\$ 140,152.84
\$ 9,143.53	\$ -	\$ 9,143.53	\$ 882,921.58

TOTAL BUDGET STATUS ¹	\$ 1,271,421.94	\$ 33,751.32	\$ 142,198.11	\$ 175,949.43	\$ 1,095,472.51
---	------------------------	---------------------	----------------------	----------------------	------------------------

Note:

- 1 The total change order budget is less than the original purchase order budget. For overall project budget tracking purposes, the combined costs for work completed under the original purchase order and the revised scope of work completed under the change order are compared against the original purchase order budget.

Table 2

**Purchase Order Budget Summary
Penta Wood Products Superfund Site
Siren, Wisconsin**

GHD Project Number 086165
Phase 02 - August 1, 2015 - July 31, 2017

Annual Tasks			Purchase Order Budget				Project Costs			
Task	Description	Unit	Estimated Annual Quantity	Unit Cost	Annual Budget	Purchase Order Budget (8/1/2015-7/31/2017)	Current Invoice Cost (through 11/29/2015)	Previous Invoiced Cost	Total Invoiced Cost (through 11/29/2015)	Purchase Order Budget Remaining (through 11/29/2015)
01	Routine O&M	Labor hours/rate estimated material equipment and rental costs and travel	1	\$ 319,744.46	\$ 319,744.46	\$ 639,488.92	\$ 16,274.74	\$ 62,841.36	\$ 79,116.10	\$ 560,372.82
02	Waste characterization	Labor hours/rate estimated material equipment and rental costs and travel	1	\$ 9,064.00	\$ 9,064.00	\$ 18,128.00	\$ -	\$ -	\$ -	\$ 18,128.00
03	Waste disposal	Costs plus markup	1	\$ 91,200.36	\$ 91,200.36	\$ 182,400.72	\$ -	\$ -	\$ -	\$ 182,400.72
04	Housekeeping and grounds keeping	Labor hours/rate estimated material equipment and rental costs and travel	1	\$ 17,889.60	\$ 17,889.60	\$ 35,779.20	\$ 39.75	\$ 1,960.00	\$ 1,999.75	\$ 33,779.45
05	Monthly soil gas monitoring	Each round	7	\$ 3,286.80	\$ 23,007.60	\$ 46,015.20	\$ -	\$ 5,525.48	\$ 5,525.48	\$ 40,489.72
06	Treat syst inf (PCP)	Each round	24	\$ 99.23	\$ 2,381.40	\$ 4,762.80	\$ 189.00	\$ 567.00	\$ 756.00	\$ 4,006.80
07	Treat syst eff (PCP)	Each round	52	\$ 226.73	\$ 11,789.70	\$ 23,579.40	\$ 898.61	\$ 2,798.10	\$ 3,696.71	\$ 19,882.69
08	Treat syst eff (DRO, naphthalene)	Each round	12	\$ 132.30	\$ 1,587.60	\$ 3,175.20	\$ 126.00	\$ 378.00	\$ 504.00	\$ 2,671.20
09	Treat syst eff (metals, chloride)	Each round	4	\$ 194.70	\$ 778.80	\$ 1,557.60	\$ 64.05	\$ -	\$ 64.05	\$ 1,493.55
10	Treat syst eff (BTEX, phenol, dioxin)	Each round	1	\$ 495.60	\$ 495.60	\$ 991.20	\$ -	\$ -	\$ -	\$ 991.20
11	Semi-annual GW/LNAPL level monitoring	Each round	2	\$ 894.00	\$ 1,788.00	\$ 3,576.00	\$ -	\$ 746.25	\$ 746.25	\$ 2,829.75
12	Annual GW well sampling	Each round	1	\$ 20,284.30	\$ 20,284.30	\$ 40,568.60	\$ 633.75	\$ 19,594.33	\$ 20,228.08	\$ 20,340.52

Table 2

**Purchase Order Budget Summary
Penta Wood Products Superfund Site
Siren, Wisconsin**

GHD Project Number 086165
Phase 02 - August 1, 2015 - July 31, 2017

Annual Tasks							Project Costs			
Purchase Order Budget										
Task	Description	Unit	Estimated Annual Quantity	Unit Cost	Annual Budget	Purchase Order Budget (8/1/2015-7/31/2017)	Current Invoice Cost (through 11/29/2015)	Previous Invoiced Cost	Total Invoiced Cost (through 11/29/2015)	Purchase Order Budget Remaining (through 11/29/2015)
13	Semi-annual GW well sampling	Each round	1	\$ 8,511.20	\$ 8,511.20	\$ 17,022.40	\$ -	\$ -	\$ -	\$ 17,022.40
14	Semi-annual residential well sampling	Each round	2	\$ 5,388.18	\$ 10,776.35	\$ 21,552.70	\$ 321.50	\$ 5,067.13	\$ 5,388.63	\$ 16,164.07
15	Semi-annual reporting	Each	2	\$ 8,282.00	\$ 16,564.00	\$ 33,128.00	\$ 162.50	\$ 1,073.50	\$ 1,236.00	\$ 31,892.00
16	Monthly status reporting	Each	12	\$ 3,523.83	\$ 42,286.00	\$ 84,572.00	\$ 3,610.51	\$ 9,176.82	\$ 12,787.33	\$ 71,784.67
17	Regulatory communications	Pre-approved and determined by DNR	1	\$ 15,000.00	\$ 15,000.00	\$ 30,000.00	\$ -	\$ -	\$ -	\$ 30,000.00
18	Site Safety Plan	Estimated cost not to exceed	1	\$ 1,942.00	\$ 1,942.00	\$ 3,884.00	\$ -	\$ 275.50	\$ 275.50	\$ 3,608.50
19	Site QA/QC Plan	Estimated cost not to exceed	1	\$ 4,200.00	\$ 4,200.00	\$ 8,400.00	\$ -	\$ -	\$ -	\$ 8,400.00
					Annual Tasks Subtotal	\$ 599,290.97	\$ 22,320.41	\$ 110,003.47	\$ 132,323.88	\$ 1,066,258.06

Additional Tasks										
20	Alternate remedy recommendation ¹	Estimated cost not to exceed	1	\$ 27,750.00		\$ 27,750.00	\$ 2,287.38	\$ 28,408.51	\$ 30,695.89	\$ (2,945.89)
21	WPDES permit updates	Estimated cost not to exceed	1	\$ 3,288.00		\$ 3,288.00	\$ -	\$ -	\$ -	\$ 3,288.00
22	Heating/ventilation system repairs	Labor, material, and contractor costs	1	\$ 20,752.00		\$ 20,752.00	\$ -	\$ 1,787.50	\$ 1,787.50	\$ 18,964.50
23	Well repairs	Labor, material, and contractor costs	1	\$ 21,050.00		\$ 21,050.00	\$ -	\$ 1,998.63	\$ 1,998.63	\$ 19,051.37
					Additional Tasks Subtotal	\$ 72,840.00	\$ 2,287.38	\$ 32,194.64	\$ 34,482.02	\$ 38,357.98
						PURCHASE ORDER TOTAL	\$ 1,271,421.94	\$ 24,607.79	\$ 142,198.11	\$ 166,805.90
								\$ 1,104,616.04		

Notes:

- ¹ Task 20 unit price estimated to increase by \$3,000.00 due to additional work associated with evaluating existing monitoring well network, proposing additional well locations, confirming field locations; developing a microcosm and bio-trap study work plan; assessing microbial biological tools (BMTs) and environmental molecular diagnostics (EMDs).

Table 3

**2015-2016 Change Order Budget Summary
Penta Wood Products Superfund Site
Siren, Wisconsin**

**GHD Project Number 086165
Phase 03 - November 1, 2015 - December 31, 2016**

Task	Description	Unit	Estimated Quantity	Unit Cost	Budget	Project Costs			
						Current Invoice Cost (through 11/29/2015)	Previous Invoiced Cost	Total Invoiced Cost (through 11/29/2015)	Change Order Budget Remaining (through 11/29/2015)
01	Well repairs	Lump sum	1	\$ 20,663.30	\$ 20,663.30	\$ 2,109.75	\$ -	\$ 2,109.75	\$ 18,553.55
02	Drilling and well installation	Lump sum	1	\$ 63,369.90	\$ 63,369.90	\$ 4,228.51	\$ -	\$ 4,228.51	\$ 59,141.39
03	System decommissioning	Lump sum	1	\$ 82,778.80	\$ 82,778.80	\$ 510.75	\$ -	\$ 510.75	\$ 82,268.05
04	Site safety plan	Plan	1	\$ 3,372.50	\$ 3,372.50	\$ 838.03	\$ -	\$ 838.03	\$ 2,534.47
05	Site QA/QC plan	Plan	1	\$ 6,829.50	\$ 6,829.50	\$ -	\$ -	\$ -	\$ 6,829.50
06	Waste characterization	Lump sum	1	\$ 20,810.00	\$ 20,810.00	\$ -	\$ -	\$ -	\$ 20,810.00
07	Waste disposal	Lump sum	1	\$ 173,149.00	\$ 173,149.00	\$ -	\$ -	\$ -	\$ 173,149.00
08	Housekeeping and grounds keeping	Lump sum	1	\$ 16,545.30	\$ 16,545.30	\$ -	\$ -	\$ -	\$ 16,545.30
09	Quarterly groundwater/LNAPL level monitoring	Event	4	\$ 3,471.65	\$ 13,886.60	\$ -	\$ -	\$ -	\$ 13,886.60
10	Baseline groundwater well sampling	Event	1	\$ 74,916.75	\$ 74,916.75	\$ -	\$ -	\$ -	\$ 74,916.75

Table 3

**2015-2016 Change Order Budget Summary
Penta Wood Products Superfund Site
Siren, Wisconsin**

GHD Project Number 086165
Phase 03 - November 1, 2015 - December 31, 2016

Task	Description	Unit	Estimated Quantity	Unit Cost	Budget	Project Costs			
						Current Invoice Cost (through 11/29/2015)	Previous Invoiced Cost	Total Invoiced Cost (through 11/29/2015)	Change Order Budget Remaining (through 11/29/2015)
11	Quarterly groundwater well sampling	Event	3	\$ 26,278.28	\$ 78,834.84	\$ -	\$ -	\$ -	\$ 78,834.84
12	Semiannual residential well sampling	Event	2	\$ 4,194.89	\$ 8,389.78	\$ -	\$ -	\$ -	\$ 8,389.78
13	Quarterly reporting	Report	4	\$ 8,339.00	\$ 33,356.00	\$ -	\$ -	\$ -	\$ 33,356.00
14	Monthly reporting	Report	14	\$ 2,792.65	\$ 39,097.10	\$ -	\$ -	\$ -	\$ 39,097.10
15	Regulatory communications	Pre-approved and determined by DNR	1	\$ 15,000.00	\$ 15,000.00	\$ -	\$ -	\$ -	\$ 15,000.00
16	Microcosm and bio-trap study	Lump sum	1	\$ 45,793.40	\$ 45,793.40	\$ 1,456.49	\$ -	\$ 1,456.49	\$ 44,336.91
17	Shallow soil and sediment investigation	Pre-approved and determined by DNR	1	\$ 55,119.50	\$ 55,119.50	\$ -	\$ -	\$ -	\$ 55,119.50
					2015-2016 CHANGE ORDER TOTAL	\$ 9,143.53	\$ -	\$ 9,143.53	\$ 742,768.74

Table 4

**2017 Change Order Budget Summary
Penta Wood Products Superfund Site
Siren, Wisconsin**

**GHD Project Number 086165
Phase 04 - January 1, 2017 - December 31, 2017**

Task	Description	Unit	Estimated Quantity	Unit Cost	Budget	Project Costs			
						Current Invoice Cost (through 11/29/2015)	Previous Invoiced Cost	Total Invoiced Cost (through 11/29/2015)	Change Order Budget Remaining (through 11/29/2015)
01	Site safety plan	Plan	1	\$ 1,310.50	\$ 1,310.50	\$ -	\$ -	\$ -	\$ 1,310.50
02	Site QA/QC plan	Plan	1	\$ 2,098.00	\$ 2,098.00	\$ -	\$ -	\$ -	\$ 2,098.00
03	Housekeeping and grounds keeping	Lump sum	1	\$ 15,381.60	\$ 15,381.60	\$ -	\$ -	\$ -	\$ 15,381.60
04	Quarterly groundwater/LNAPL level monitoring	Event	4	\$ 3,471.60	\$ 13,886.40	\$ -	\$ -	\$ -	\$ 13,886.40
05	Semiannual groundwater well sampling	Event	2	\$ 26,278.28	\$ 52,556.56	\$ -	\$ -	\$ -	\$ 52,556.56
06	Semiannual residential well sampling	Event	2	\$ 4,194.89	\$ 8,389.78	\$ -	\$ -	\$ -	\$ 8,389.78
07	Semiannual reporting	Report	2	\$ 6,201.00	\$ 12,402.00	\$ -	\$ -	\$ -	\$ 12,402.00
08	Monthly reporting	Report	12	\$ 1,594.00	\$ 19,128.00	\$ -	\$ -	\$ -	\$ 19,128.00
09	Regulatory communications	Pre-approved and determined by DNR	1	\$ 15,000.00	\$ 15,000.00	\$ -	\$ -	\$ -	\$ 15,000.00
				2017 CHANGE ORDER TOTAL	\$ 140,152.84	\$ -	\$ -	\$ -	\$ 140,152.84

Table 5

**Groundwater Extraction Summary
Penta Wood Products Superfund Site
Siren, Wisconsin**

Date	Pumping Volume (gallons)	Average Daily Pumping Rate (gallons per minute)	Comments
11/1/2015	43,020	30	
11/2/2015	41,274	29	
11/3/2015	41,469	29	
11/4/2015	41,350	29	
11/5/2015	42,418	29	
11/6/2015	41,354	29	
11/7/2015	41,396	29	
11/8/2015	41,207	29	
11/9/2015	41,002	28	
11/10/2015	39,414	27	
11/11/2015	41,393	29	
11/12/2015	41,177	29	
11/13/2015	40,336	28	
11/14/2015	13,598	9	System shutdown due to power outage
11/15/2015	0	0	
11/16/2015	0	0	
11/17/2015	22,468	16	System restarted after power outage shutdown
11/18/2015	33,846	24	
11/19/2015	41,471	29	
11/20/2015	41,658	29	
11/21/2015	41,364	29	
11/22/2015	41,113	29	
11/23/2015	15,422	11	System shut down to initiate the pilot study

Table 6

**Groundwater Extraction System Influent and Effluent Analytical Data
Penta Wood Products Superfund Site
Siren, Wisconsin**

Sample Date	Pentachlorophenol ug/L	Naphthalene ug/L	WI DRO (C10-C28) mg/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Manganese ug/L	Zinc ug/L	Chloride mg/L
Groundwater Influent Sample									
11/2/2015	1100	NA	NA	NA	NA	NA	NA	NA	NA
Groundwater Lead GAC Effluent Sample									
11/2/2015	2.7	NA	NA	NA	NA	NA	NA	NA	NA
Groundwater Effluent Sample									
11/2/2015	0.14	<0.069	<0.051	NA	NA	NA	NA	NA	NA
11/10/2015	0.047 J	NA	NA	NA	NA	NA	NA	NA	NA
11/17/2015	0.16	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- ug/L - Concentrations listed with units of micrograms per liter
- mg/L - Concentrations listed with units of milligrams per liter
- < - Less than symbol indicates the analand was not detected above the reporting limit
- WI DRO - Wisconsin Diesel Range Organics
- NA - Not analyzed
- J - Data qualifier indicates concentration was estimated
- B - Compound was found in the blanke and sample

Table 7

**LNAPL Thickness and Recovery Summary - Extraction Wells
Penta Wood Products Superfund Site
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW02	2/18/2015	97.51	NP	0.00	NA	Groundwater extraction rate increased to 10 gpm
EW02	2/20/2015	97.52	NP	0.00	NA	
EW02	2/24/2015	97.59	NP	0.00	NA	
EW02	3/10/2015	97.67	NP	0.00	NA	
EW02	3/24/2015	97.76	NP	0.00	NA	
EW02	4/10/2015	97.79	NP	0.00	NA	
EW02	4/16/2015	97.76	NP	0.00	NA	
EW02	5/8/2015	97.77	NP	0.00	NA	Groundwater extraction rate increased to 12 gpm on 4/30/2015
EW02	5/21/2015	97.89	NP	0.00	NA	
EW02	6/3/2015	97.92	NP	0.00	NA	
EW02	6/16/2015	97.99	NP	0.00	NA	
EW02	7/8/2015	98.12	NP	0.00	NA	
EW02	7/21/2015	98.11	NP	0.00	NA	
EW02	7/29/2015	98.11	NP	0.00	NA	Groundwater extraction rate increased to 13.5 gpm
EW02	8/5/2015	98.18	NP	0.00	NA	
EW02	8/19/2015	98.11	NP	0.00	NA	
EW02	9/4/2015	97.83	NP	0.00	NA	
EW02	9/21/2015	97.76	NP	0.00	NA	
EW02	10/8/2015	97.72	NP	0.00	NA	
EW02	10/22/2015	97.64	NP	0.00	NA	
EW02	11/2/2015	97.58	NP	0.00	NA	
EW02	11/23/2015	NM	NM	NM	NA	Groundwater extraciton pump turned off for pilot study
				Total LNAPL Recovered	0.0	

Table 7

**LNAPL Thickness and Recovery Summary - Extraction Wells
Penta Wood Products Superfund Site
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW04	11/4/2014	114.30	NP	0.00	NA	
EW04	12/11/2014	115.39	NP	0.00	NA	
EW04	12/23/2014	115.34	NP	0.00	NA	Groundwater extraction system shutdown pending carbon change-out
EW04	12/30/2014	115.26	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW04	1/8/2015	115.22	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW04	1/19/2015	115.23	NP	0.00	NA	Groundwater extraction system restarted after carbon change-out
EW04	1/22/2015	115.36	NP	0.00	NA	
EW04	1/30/2015	115.47	NP	0.00	NA	
EW04	2/3/2015	115.48	NP	0.00	NA	
EW04	2/13/2015	115.51	NP	0.00	NA	
EW04	2/17/2015	115.48	NP	0.00	NA	Groundwater extraction rate increased to 10 gpm
EW04	2/18/2015	115.51	NP	0.00	NA	
EW04	2/20/2015	115.43	NP	0.00	NA	
EW04	2/24/2015	115.53	NP	0.00	NA	
EW04	3/10/2015	115.58	NP	0.00	NA	
EW04	3/24/2015	115.67	NP	0.00	NA	
EW04	4/10/2015	115.69	NP	0.00	NA	
EW04	4/16/2015	115.69	NP	0.00	NA	
EW04	5/8/2015	115.69	NP	0.00	NA	Groundwater extraction rate increased to 12 gpm on 4/30/2015
EW04	5/21/2015	115.74	NP	0.00	NA	
EW04	6/3/2015	115.75	NP	0.00	NA	
EW04	6/16/2015	115.82	NP	0.00	NA	
EW04	7/8/2015	115.93	NP	0.00	NA	
EW04	7/21/2015	115.92	NP	0.00	NA	
EW04	7/29/2015	115.91	NP	0.00	NA	Groundwater extraction rate increased to 13.5 gpm
EW04	8/5/2015	115.97	NP	0.00	NA	
EW04	8/19/2015	115.95	NP	0.00	NA	
EW04	9/4/2015	115.78	NP	0.00	NA	
EW04	9/21/2015	115.61	NP	0.00	NA	
EW04	10/8/2015	115.58	NP	0.00	NA	
EW04	10/22/2015	115.58	NP	0.00	NA	
EW04	11/2/2015	115.45	NP	0.00	NA	
EW04	11/23/2015	NM	NM	NM	NA	Groundwater extraction pump turned off for pilot study
				Total LNAPL Recovered	0.0	

Table 7

**LNAPL Thickness and Recovery Summary - Extraction Wells
Penta Wood Products Superfund Site
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW05	11/4/2014	83.35	83.25	0.10	NA	
EW05	11/6/2014	NM	NM	NM	<0.1	
EW05	11/7/2014	91.51	91.44	0.07	NA	
EW05	11/11/2014	91.75	91.56	0.19	NA	
EW05	11/12/2014	91.65	91.48	0.17	NA	Temporary system shutdown due to alarm condition
EW05	11/17/2014	91.64	91.51	0.13	NA	
EW05	12/1/2014	91.58	91.46	0.12	NA	
EW05	12/8/2014	91.55	91.51	0.04	NA	
EW05	12/11/2014	91.65	91.52	0.13	NA	
EW05	12/23/2014	91.40	91.39	0.01	NA	Groundwater extraction system shutdown pending carbon change-out
EW05	12/30/2014	91.37	91.36	0.01	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW05	1/8/2015	91.31	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW05	1/19/2015	91.32	NP	0.00	NA	Groundwater extraction system restarted after carbon change-out
EW05	1/22/2015	91.95	91.45	0.50	NA	
EW05	1/30/2015	92.00	91.49	0.51	0.1	Measurements recorded prior to LNAPL removal
EW05	2/3/2015	92.17	91.54	0.63	NA	
EW05	2/13/2015	92.14	91.54	0.60	NA	Groundwater extraction pump turned off
EW05	2/17/2015	91.72	91.49	0.23	NA	
EW05	2/20/2015	91.96	91.54	0.42	NA	
EW05	2/24/2015	91.91	91.56	0.35	NA	
EW05	2/27/2015	NM	NM	NM	0.3	Measurements recorded prior to LNAPL removal
EW05	3/10/2015	92.30	91.58	0.72	0.1	Measurements recorded prior to LNAPL removal
EW05	3/26/2015	92.42	91.62	0.80	NA	
EW05	3/31/2015	NM	NM	NM	0.5	
EW05	4/10/2015	92.50	91.71	0.79	NA	
EW05	4/16/2015	92.51	91.69	0.82	NA	
EW05	4/27/2015	NM	NM	NM	1.0	
EW05	5/8/2015	92.03	91.70	0.33	NA	
EW05	5/21/2015	92.34	91.76	0.58	1.0	
EW05	6/3/2015	92.29	91.79	0.50	0.4	
EW05	6/16/2015	92.40	91.86	0.54	0.3	
EW05	7/8/2015	92.34	91.95	0.39	NA	
EW05	7/10/2015	NM	NM	NM	0.5	
EW05	7/21/2015	92.58	91.93	0.65	NA	
EW05	7/23/2015	NM	NM	NM	0.5	
EW05	7/29/2015	92.69	91.96	0.73	NA	
EW05	8/5/2015	92.60	92.04	0.56	NA	
EW05	8/7/2015	NM	NM	NM	0.3	
EW05	8/19/2015	92.45	91.94	0.51	NA	
EW05	8/21/2015	NM	NM	NM	0.3	
EW05	9/4/2015	92.02	91.82	0.20	NA	
EW05	9/11/2015	NM	NM	NM	<0.1	
EW05	9/21/2015	91.67	91.66	0.01	NA	
EW05	10/8/2015	91.87	91.67	0.20	NA	
EW05	10/22/2015	91.66	91.65	0.01	NA	
EW05	11/2/2015	91.51	91.50	0.01	NA	
Total LNAPL Recovered					5.5	

Table 7

**LNAPL Thickness and Recovery Summary - Extraction Wells
Penta Wood Products Superfund Site
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW06	11/5/2014	111.22	98.06	13.16	12.0	
EW06	11/12/2014	107.80	98.30	9.50	NA	Temporary system shutdown due to alarm condition
EW06	11/17/2014	110.34	98.52	11.82	NA	
EW06	11/24/2014	111.05	98.45	12.60	10.0	
EW06	11/25/2014	105.63	98.55	7.08	NA	
EW06	12/1/2014	108.60	98.53	10.07	NA	
EW06	12/4/2014	109.35	98.48	10.87	NA	
EW06	12/8/2014	101.90	97.89	4.01	NA	
EW06	12/11/2014	111.91	98.01	13.90	NA	Measurements recorded prior to LNAPL removal
EW06	12/11/2014	100.35	98.40	1.95	12.0	Measurements recorded immediately after LNAPL removal
EW06	12/15/2014	108.40	98.01	10.39	NA	
EW06	12/23/2014	109.35	98.01	11.34	NA	Measurements recorded prior to LNAPL removal
						Measurements recorded immediately after LNAPL removal, groundwater extraction system shutdown pending carbon change-out
EW06	12/23/2014	99.50	98.35	1.15	13.0	
EW06	12/30/2014	98.59	97.83	0.76	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW06	1/8/2015	99.00	97.92	1.08	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW06	1/19/2015	99.54	97.80	1.74	NA	Groundwater extraction system restarted after carbon change-out
EW06	1/22/2015	111.10	98.18	12.92	NA	
EW06	1/23/2015	98.90	98.50	0.40	12.0	Measurements recorded immediately after LNAPL removal
EW06	1/30/2015	109.35	98.22	11.13	NA	
EW06	2/3/2015	112.61	98.22	14.39	12.0	Measurements recorded prior to LNAPL removal
EW06	2/13/2015	112.44	98.22	14.22	14.0	Groundwater extraction pump turned off
EW06	2/17/2015	101.95	98.12	3.83	NA	
EW06	2/20/2015	105.20	98.18	7.02	NA	
EW06	2/24/2015	105.37	98.02	7.35	8.0	Measurements recorded prior to LNAPL removal
EW06	3/10/2015	108.36	98.22	10.14	8.0	Measurements recorded prior to LNAPL removal
EW06	3/24/2015	NM	NM	NM	8.0	Not measured due to equipment breakdown
EW06	3/26/2015	105.87	98.21	7.66	NA	
EW06	4/10/2015	105.55	98.39	7.16	10.0	
EW06	4/16/2015	106.02	98.36	7.66	10.0	
EW06	4/30/2015	106.33	98.47	7.86	8.0	Groundwater extraction rate increased to 6 gpm
EW06	5/8/2015	100.72	98.32	2.40	4.0	
EW06	5/21/2015	106.84	98.27	8.57	10.0	
EW06	6/3/2015	106.55	98.41	8.14	NA	
EW06	6/4/2015	NM	NM	NM	10.0	
EW06	6/16/2015	105.85	98.49	7.36	7.0	
EW06	7/8/2015	107.10	98.42	8.68	20.0	
EW06	7/10/2015	107.10	98.60	8.50	17.0	
EW06	7/21/2015	107.90	98.54	9.36	17.0	
EW06	7/29/2015	105.87	98.59	7.28	NA	Groundwater extraction rate decreased to 3 gpm
EW06	8/5/2015	105.98	98.65	7.33	14.0	
EW06	8/7/2015	NM	NM	NM	14.0	
EW06	8/19/2015	103.95	98.51	5.44	10.0	
EW06	9/4/2015	105.31	98.31	7.00	10.0	
EW06	9/21/2015	104.49	98.28	6.21	10.0	
EW06	10/8/2015	100.38	98.25	2.13	5.0	
EW06	10/22/2015	105.54	98.23	7.31	8.0	
EW06	11/2/2015	105.15	98.05	7.10	NA	
EW06	11/5/2015	NM	NM	NM	8.0	
EW06	11/23/2015	NM	NM	NM	NA	Groundwater extraction pump turned off for pilot study
				Total LNAPL Recovered	301.0	

Table 7

**LNAPL Thickness and Recovery Summary - Extraction Wells
Penta Wood Products Superfund Site
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW10	11/4/2014	108.20	103.92	4.28	NA	
EW10	11/5/2014	108.77	104.70	4.07	4.0	
EW10	11/18/2014	107.60	104.35	3.25	NA	
EW10	11/24/2014	107.45	103.94	3.51	0.0	LNAPL pump inoperable, unable to recover LNAPL
EW10	11/25/2014	107.50	103.91	3.59	NA	
EW10	12/1/2014	107.30	104.14	3.16	NA	
EW10	12/4/2014	107.33	104.11	3.22	NA	Measurements recorded prior to LNAPL removal
EW10	12/4/2014	105.35	104.05	1.30	2.0	Measurements recorded immediately after LNAPL removal
EW10	12/8/2014	104.29	103.17	1.12	NA	
EW10	12/11/2014	106.95	104.05	2.90	NA	Measurements recorded prior to LNAPL removal
EW10	12/11/2014	105.46	104.12	1.34	2.0	Measurements recorded immediately after LNAPL removal
EW10	12/15/2014	106.68	104.00	2.68	NA	
EW10	12/23/2014	107.25	103.91	3.34	NA	Measurements recorded prior to LNAPL removal
						Measurements recorded immediately after LNAPL removal, groundwater extraction system shutdown pending carbon change-out
EW10	12/23/2014	104.75	104.06	0.69	4.0	
EW10	12/30/2014	104.59	103.00	1.59	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW10	1/8/2015	104.55	103.10	1.45	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW10	1/19/2015	104.70	103.00	1.70	NA	Groundwater extraction system restarted after carbon change-out
EW10	1/22/2015	106.38	104.31	2.07	NA	
EW10	1/23/2015	104.40	104.38	0.02	2.0	Measurements recorded immediately after LNAPL removal
EW10	1/30/2015	105.76	104.28	1.48	NA	
EW10	2/3/2015	106.00	104.27	1.73	2.0	Measurements recorded prior to LNAPL removal
EW10	2/13/2015	106.82	104.24	2.58	3.0	Groundwater extraction pump turned off
EW10	2/17/2015	105.80	103.65	2.15	NA	
EW10	2/20/2015	106.40	103.81	2.59	NA	
EW10	2/24/2015	106.85	103.79	3.06	2.0	Measurements recorded prior to LNAPL removal
EW10	3/10/2015	107.80	103.81	3.99	2.0	Measurements recorded prior to LNAPL removal
EW10	3/24/2015	108.21	103.84	4.37	2.0	Measurements recorded prior to LNAPL removal
EW10	4/10/2015	108.96	103.86	5.10	3.0	
EW10	4/16/2015	108.18	103.90	4.28	2.0	
EW10	4/30/2015	107.81	103.84	3.97	2.0	
EW10	5/8/2015	106.84	103.46	3.38	2.5	
EW10	5/21/2015	107.46	103.62	3.84	2.5	
EW10	6/3/2015	107.51	103.60	3.91	NA	
EW10	6/4/2015	NM	NM	NM	2.5	
EW10	6/16/2015	108.20	103.85	4.35	2.0	
EW10	7/8/2015	108.53	103.96	4.57	3.0	
EW10	7/10/2015	107.85	103.97	3.88	NA	
EW10	7/21/2015	108.48	103.96	4.52	3.0	
EW10	7/29/2015	108.10	104.00	4.10	NA	
EW10	8/5/2015	108.85	104.00	4.85	2.5	
EW10	8/19/2015	108.57	103.74	4.83	3.0	
EW10	9/4/2015	108.91	103.60	5.31	3.0	
EW10	9/21/2015	108.35	103.62	4.73	3.0	
EW10	10/8/2015	107.72	103.33	4.39	2.5	
EW10	10/22/2015	109.10	103.56	5.54	3.0	
EW10	11/2/2015	109.50	103.27	6.23	NA	
EW10	11/5/2015	NM	NM	NM	3.0	
Total LNAPL Recovered					67.5	

Table 7

**LNAPL Thickness and Recovery Summary - Extraction Wells
Penta Wood Products Superfund Site
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW12	11/4/2014	105.26	105.04	0.22	NA	
EW12	11/6/2014	NM	NM	NM	<0.1	
EW12	11/7/2014	108.26	108.15	0.11	NA	
EW12	11/11/2014	108.39	108.22	0.17	NA	
EW12	11/12/2014	101.16	101.14	0.02	NA	Temporary system shutdown due to alarm condition
EW12	11/17/2014	108.00	107.98	0.02	NA	
EW12	12/8/2014	100.99	NP	0.00	NA	
EW12	12/11/2014	108.98	108.97	0.01	NA	
EW12	12/23/2014	109.75	NP	0.00	NA	Groundwater extraction system shutdown pending carbon change-out
EW12	12/30/2014	101.10	100.88	0.22	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW12	1/8/2015	101.20	100.84	0.36	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW12	1/19/2015	101.35	100.85	0.50	NA	Groundwater extraction system restarted after carbon change-out
EW12	1/22/2015	108.16	108.15	0.01	NA	
EW12	1/30/2015	108.96	108.96	0.00	NA	
EW12	2/3/2015	109.13	109.13	0.00	NA	
EW12	2/13/2015	109.98	NP	0.00	NA	Groundwater extraction pump turned off
EW12	2/17/2015	101.56	101.08	0.48	NA	
EW12	2/20/2015	101.90	101.32	0.58	NA	
EW12	2/24/2015	102.01	101.31	0.70	NA	
EW12	2/27/2015	NM	NM	NM	0.1	Measurements recorded prior to LNAPL removal
EW12	3/10/2015	102.35	101.35	1.00	0.1	Measurements recorded prior to LNAPL removal
EW12	3/24/2015	102.45	101.33	1.12	NA	
EW12	3/31/2015	NM	NM	NM	1.0	
EW12	4/10/2015	102.22	101.36	0.86	NA	
EW12	4/16/2015	102.32	101.36	0.96	NA	
EW12	4/27/2015	NM	NM	NM	1.0	
EW12	5/8/2015	101.99	101.19	0.80	NA	
EW12	5/21/2015	102.39	101.40	0.99	1.0	
EW12	6/3/2015	102.34	101.45	0.89	0.4	
EW12	6/16/2015	102.27	101.50	0.77	0.3	
EW12	7/8/2015	102.26	101.54	0.72	NA	
EW12	7/10/2015	NM	NM	NM	0.5	
EW12	7/21/2015	102.10	101.61	0.49	NA	
EW12	7/23/2015	NM	NM	NM	0.5	
EW12	7/29/2015	102.11	101.65	0.46	NA	
EW12	8/5/2015	102.39	101.69	0.70	NA	
EW12	8/7/2015	NM	NM	NM	0.3	
EW12	8/19/2015	101.27	100.45	0.82	NA	
EW12	8/21/2015	NM	NM	NM	0.1	
EW12	9/4/2015	101.87	101.47	0.40	NA	
EW12	9/11/2015	NM	NM	NM	0.3	
EW12	9/21/2015	101.60	101.29	0.31	NA	
EW12	10/1/2015	NM	NM	NM	0.2	
EW12	10/8/2015	101.39	101.15	0.24	NA	
EW12	10/22/2015	101.52	101.23	0.29	NA	
EW12	11/2/2015	101.51	101.18	0.33	NA	
Total LNAPL Recovered					5.9	

Table 7

**LNAPL Thickness and Recovery Summary - Extraction Wells
Penta Wood Products Superfund Site
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW13	11/4/2014	111.48	NP	0.00	NA	
EW13	12/11/2014	114.81	NP	0.00	NA	
EW13	12/23/2014	115.11	NP	0.00	NA	Groundwater extraction system shutdown pending carbon change-out
EW13	12/30/2014	107.34	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW13	1/8/2015	107.27	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW13	1/19/2015	107.33	NP	0.00	NA	Groundwater extraction system restarted after carbon change-out
EW13	1/22/2015	115.05	NP	0.00	NA	
EW13	1/30/2015	115.49	NP	0.00	NA	
EW13	2/3/2015	115.28	NP	0.00	NA	
EW13	2/13/2015	115.74	NP	0.00	NA	
EW13	2/17/2015	117.05	NP	0.00	NA	Groundwater extraction rate increased to 10 gpm
EW13	2/18/2015	119.19	NP	0.00	NA	
EW13	2/20/2015	119.37	NP	0.00	NA	
EW13	2/24/2015	119.50	NP	0.00	NA	
EW13	3/10/2015	120.13	NP	0.00	NA	
EW13	3/24/2015	116.72	NP	0.00	NA	
EW13	4/10/2015	118.55	NP	0.00	NA	
EW13	4/16/2015	120.92	NP	0.00	NA	
EW13	5/8/2015	107.18	NP	0.00	NA	Groundwater extraction pump turned off on 4/30/2015
EW13	5/21/2015	104.94	NP	0.00	NA	
EW13	6/3/2015	105.88	NP	0.00	NA	
EW13	6/16/2015	106.44	NP	0.00	NA	
EW13	7/8/2015	107.42	NP	0.00	NA	
EW13	7/21/2015	107.70	NP	0.00	NA	
EW13	7/29/2015	107.91	NP	0.00	NA	
EW13	8/5/2015	107.89	NP	0.00	NA	
EW13	8/19/2015	107.80	NP	0.00	NA	
EW13	9/4/2015	107.63	NP	0.00	NA	
EW13	9/21/2015	107.63	NP	0.00	NA	
EW13	10/8/2015	107.49	NP	0.00	NA	
EW13	10/22/2015	107.72	NP	0.00	NA	
EW13	11/2/2015	107.48	NP	0.00	NA	
Total LNAPL Recovered					0.0	

Table 7

**LNAPL Thickness and Recovery Summary - Extraction Wells
Penta Wood Products Superfund Site
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW14	11/4/2014	112.55	112.45	0.10	NA	
EW14	11/6/2014	NM	NM	NM	<0.1	
EW14	11/7/2014	112.54	112.49	0.05	NA	
EW14	11/11/2014	112.68	112.60	0.08	NA	
EW14	11/12/2014	112.91	112.87	0.04	NA	Temporary system shutdown due to alarm condition
EW14	11/17/2014	111.82	111.55	0.27	NA	
EW14	12/8/2014	112.89	112.85	0.04	NA	
EW14	12/11/2014	113.83	113.75	0.08	NA	
EW14	12/23/2014	113.74	113.65	0.09	NA	Groundwater extraction system shutdown pending carbon change-out
EW14	12/30/2014	112.85	112.76	0.09	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW14	1/8/2015	112.77	112.71	0.06	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW14	1/19/2015	112.92	112.78	0.14	NA	Groundwater extraction system restarted after carbon change-out
EW14	1/22/2015	113.80	113.72	0.08	NA	
EW14	1/30/2015	113.79	113.66	0.13	<0.1	
EW14	2/3/2015	113.74	113.65	0.09	NA	
EW14	2/13/2015	113.90	113.68	0.22	NA	
EW14	2/17/2015	113.85	113.79	0.06	NA	Groundwater extraction rate increased to 10 gpm
EW14	2/18/2015	114.29	114.21	0.08	NA	
EW14	2/20/2015	114.26	114.18	0.08	NA	
EW14	2/24/2015	114.25	114.21	0.04	NA	
EW14	3/10/2015	114.36	114.30	0.06	NA	
EW14	3/24/2015	114.41	114.36	0.05	NA	
EW14	3/31/2015	NM	NM	NM	<0.1	
EW14	4/10/2015	114.43	114.42	0.01	NA	
EW14	4/16/2015	114.47	114.44	0.03	NA	
EW14	5/8/2015	113.30	113.14	0.16	NA	Groundwater extraction pump turned off on 4/30/2015
EW14	5/21/2015	113.71	113.49	0.22	NA	
EW14	6/3/2015	113.72	113.50	0.22	0.2	
EW14	6/16/2015	113.71	113.58	0.13	0.1	
EW14	7/8/2015	113.71	113.62	0.09	NA	
EW14	7/21/2015	113.78	113.68	0.10	NA	
EW14	7/29/2015	113.83	113.72	0.11	NA	
EW14	8/5/2015	113.84	113.72	0.12	NA	
EW14	8/7/2015	NM	NM	NM	<0.1	
EW14	8/19/2015	113.80	113.70	0.10	NA	
EW14	9/4/2015	113.68	113.59	0.09	NA	
EW14	9/11/2015	NM	NM	NM	<0.1	
EW14	9/21/2015	113.43	113.38	0.05	NA	
EW14	10/8/2015	113.12	113.06	0.06	NA	
EW14	10/22/2015	113.48	113.39	0.09	NA	
EW14	11/2/2015	113.44	113.32	0.12	NA	
Total LNAPL Recovered					0.8	
Total LNAPL Recovered (all wells)					11.0	During November 2015
Total LNAPL Recovered (all wells)					380.7	Since system modification in October 2014

Notes:

¹ Depth to water and depth to LNAPL measurements before December 2014 were not consistently recorded from the same benchmark location/elevation. Measurements were consistently recorded from the same benchmark location at the top of the well vault starting in December 2014.

NM - Not measured

NP - LNAPL was not present in a measurable quantity

NA - Not applicable

Table 8

Well Repair Summary
Penta Wood Products Superfund Site
Siren, Wisconsin

	Repaired Inner Well Casing	Replaced Well Cover	Extended Outer Protective Casing	Extended Inner Well Casing	Replaced Outer Protective Casing	Cut Down Inner Well Casing	Cut Down Outer Protective Casing	Regrade Around Well	Raised Outer Protective Casing	Abandoned Monitoring Point	Replaced Lock
Monitoring Wells											
MW1								X	X		X
MW2		X		X	X			X			X
MW3							X				X
MW4	X	X									X
MW5	X							X			X
MW6		X		X	X			X			X
MW6S		X		X	X			X			X
MW7							X				X
MW8							X				X
MW9		X	X		X						X
MW10		X		X	X						X
MW10S		X		X	X						X
MW11											X
MW12						X	X				X
MW13		X					X				X
MW14											X
MW15											X
MW16											X
MW17											X
MW18	X										X
MW19		X	X								X
MW20		X		X	X						X
MW21											X
MW22											X
MW23											X
MW24											X
MW25							X				X
MW26						X					X
MW27											X
MW28						X					X
MW29											
MW30											
MW31											

Soil Gas Monitoring Points
 SG-22 (old)

X

Attachment A

WPDES Compliance Sample Laboratory Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-57385-1

Client Project/Site: 86165-02-01, Penta Wood

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

11/10/2015 2:14:12 PM

Denise Heckler, Project Manager II

(330)966-9477

denise.heckler@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1

Table of Contents 2

Definitions/Glossary 3

Case Narrative 4

Method Summary 6

Sample Summary 7

Detection Summary 8

Client Sample Results 9

Surrogate Summary 11

QC Sample Results 12

QC Association Summary 14

Lab Chronicle 15

Certification Summary 16

Chain of Custody 17

Receipt Checklists 20



Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Job ID: 240-57385-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: GHD Services Inc.

Project: 86165-02-01, Penta Wood

Report Number: 240-57385-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 11/03/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.8 C.

SEMIVOLATILE ORGANIC COMPOUNDS (GCMS)

Sample W-151102-TB-ME (240-57385-2) was analyzed for semivolatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 11/04/2015 and analyzed on 11/08/2015.

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

WISCONSIN DRO

Sample W-151102-TB-ME (240-57385-2) was analyzed for Wisconsin DRO in accordance with Wisconsin DNR Modified DRO. The samples were prepared on 11/04/2015 and analyzed on 11/06/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

Case Narrative

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Job ID: 240-57385-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHLORINATED HERBICIDES

Samples W-151102-TB-MI (240-57385-1) and W-151102-TB-ME (240-57385-2) were analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 11/04/2015 and analyzed on 11/09/2015 and 11/10/2015.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

Sample W-151102-TB-MI (240-57385-1)[4000X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Method	Method Description	Protocol	Laboratory
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
WI-DRO	Wisconsin - Diesel Range Organics (GC)	WI-DRO	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

WI-DRO = "Modified DRO: Method For Determining Diesel Range Organics", Wisconsin DNR, Publ-SW-141, September, 1995.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Sample Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-57385-1	W-151102-TB-MI	Water	11/02/15 13:20	11/03/15 09:20
240-57385-2	W-151102-TB-ME	Water	11/02/15 13:30	11/03/15 09:20

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

Detection Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Client Sample ID: W-151102-TB-MI

Lab Sample ID: 240-57385-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	1100		99	15	ug/L	4000		8151A	Total/NA

Client Sample ID: W-151102-TB-ME

Lab Sample ID: 240-57385-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.14		0.099	0.015	ug/L	4		8151A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Client Sample ID: W-151102-TB-MI

Lab Sample ID: 240-57385-1

Date Collected: 11/02/15 13:20

Matrix: Water

Date Received: 11/03/15 09:20

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	1100		99	15	ug/L		11/04/15 17:10	11/10/15 06:47	4000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140				11/04/15 17:10	11/10/15 06:47	4000

Client Sample Results

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Client Sample ID: W-151102-TB-ME

Date Collected: 11/02/15 13:30

Date Received: 11/03/15 09:20

Lab Sample ID: 240-57385-2

Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.069		0.22	0.069	ug/L	—	11/04/15 09:00	11/08/15 00:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	65		29 - 110				11/04/15 09:00	11/08/15 00:15	1
2-Fluorophenol (Surr)	35		15 - 110				11/04/15 09:00	11/08/15 00:15	1
2,4,6-Tribromophenol (Surr)	69		21 - 128				11/04/15 09:00	11/08/15 00:15	1
Nitrobenzene-d5 (Surr)	68		31 - 110				11/04/15 09:00	11/08/15 00:15	1
Phenol-d5 (Surr)	20		10 - 110				11/04/15 09:00	11/08/15 00:15	1
Terphenyl-d14 (Surr)	61		31 - 115				11/04/15 09:00	11/08/15 00:15	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.14		0.099	0.015	ug/L	—	11/04/15 17:10	11/09/15 12:19	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	86		32 - 140				11/04/15 17:10	11/09/15 12:19	4

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	<0.051		0.10	0.051	mg/L	—	11/04/15 06:41	11/06/15 18:04	1

TestAmerica Canton

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-57385-2	W-151102-TB-ME	65	35	69	68	20	61
LCS 240-205133/22-A	Lab Control Sample	75	66	82	98	56	89
MB 240-205133/21-A	Method Blank	70	64	79	70	55	80

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
 2FP = 2-Fluorophenol (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 PHL = Phenol-d5 (Surr)
 TPH = Terphenyl-d14 (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPA1 (32-140)	DCPA2 (32-140)
240-57385-1	W-151102-TB-MI	0 X D	0 X D
240-57385-2	W-151102-TB-ME	86	77
LCS 180-159325/2-A	Lab Control Sample	91	80
LCSD 180-159325/3-A	Lab Control Sample Dup	96	90
MB 180-159325/1-A	Method Blank	69	68
MB 180-159325/1-A	Method Blank	77	76

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

QC Sample Results

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-205133/21-A

Matrix: Water

Analysis Batch: 205735

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 205133

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L	-	11/04/15 09:00	11/07/15 19:32	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	70		29 - 110				11/04/15 09:00	11/07/15 19:32	1
2-Fluorophenol (Surr)	64		15 - 110				11/04/15 09:00	11/07/15 19:32	1
2,4,6-Tribromophenol (Surr)	79		21 - 128				11/04/15 09:00	11/07/15 19:32	1
Nitrobenzene-d5 (Surr)	70		31 - 110				11/04/15 09:00	11/07/15 19:32	1
Phenol-d5 (Surr)	55		10 - 110				11/04/15 09:00	11/07/15 19:32	1
Terphenyl-d14 (Surr)	80		31 - 115				11/04/15 09:00	11/07/15 19:32	1

Lab Sample ID: LCS 240-205133/22-A

Matrix: Water

Analysis Batch: 205735

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 205133

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Naphthalene	20.0	14.9		ug/L	-	75	52 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
2-Fluorobiphenyl (Surr)	75		29 - 110				
2-Fluorophenol (Surr)	66		15 - 110				
2,4,6-Tribromophenol (Surr)	82		21 - 128				
Nitrobenzene-d5 (Surr)	98		31 - 110				
Phenol-d5 (Surr)	56		10 - 110				
Terphenyl-d14 (Surr)	89		31 - 115				

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 180-159325/1-A

Matrix: Water

Analysis Batch: 159715

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 159325

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L	-	11/04/15 17:10	11/09/15 11:08	4
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	69		32 - 140				11/04/15 17:10	11/09/15 11:08	4

Lab Sample ID: MB 180-159325/1-A

Matrix: Water

Analysis Batch: 159715

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 159325

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.078		0.50	0.078	ug/L	-	11/04/15 17:10	11/09/15 11:55	20
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	77		32 - 140				11/04/15 17:10	11/09/15 11:55	20

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 180-159325/2-A
Matrix: Water
Analysis Batch: 159715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 159325

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Pentachlorophenol			5.00	4.82		ug/L		96	40 - 140		
Surrogate	LCS %Recovery	LCS Qualifier	Limits								
2,4-Dichlorophenylacetic acid	91		32 - 140								

Lab Sample ID: LCSD 180-159325/3-A
Matrix: Water
Analysis Batch: 159715

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 159325

			Spike	LCSD	LCSD				%Rec.	RPD	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol			5.00	5.63		ug/L		113	40 - 140	15	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits								
2,4-Dichlorophenylacetic acid	96		32 - 140								

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Lab Sample ID: MB 240-205085/2-A
Matrix: Water
Analysis Batch: 205645

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 205085

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	<0.050		0.10	0.050	mg/L		11/04/15 06:41	11/06/15 17:09	1

Lab Sample ID: LCS 240-205085/3-A
Matrix: Water
Analysis Batch: 205645

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 205085

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
WI Diesel Range Organics (C10-C28)	0.500	0.472		mg/L		94	75 - 115

Lab Sample ID: LCSD 240-205085/4-A
Matrix: Water
Analysis Batch: 205645

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 205085

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
WI Diesel Range Organics (C10-C28)	0.500	0.486		mg/L		97	75 - 115	3	20

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

GC/MS Semi VOA

Prep Batch: 205133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-2	W-151102-TB-ME	Total/NA	Water	3510C	
LCS 240-205133/22-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-205133/21-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 205735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-2	W-151102-TB-ME	Total/NA	Water	8270C	205133
LCS 240-205133/22-A	Lab Control Sample	Total/NA	Water	8270C	205133
MB 240-205133/21-A	Method Blank	Total/NA	Water	8270C	205133

GC Semi VOA

Prep Batch: 159325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-1	W-151102-TB-MI	Total/NA	Water	8151A	
240-57385-2	W-151102-TB-ME	Total/NA	Water	8151A	
LCS 180-159325/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-159325/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 159715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-1	W-151102-TB-MI	Total/NA	Water	8151A	159325
240-57385-2	W-151102-TB-ME	Total/NA	Water	8151A	159325
LCS 180-159325/2-A	Lab Control Sample	Total/NA	Water	8151A	159325
LCSD 180-159325/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	159325
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	159325
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	159325

Prep Batch: 205085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-2	W-151102-TB-ME	Total/NA	Water	3520C	
LCS 240-205085/3-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 240-205085/4-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 240-205085/2-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 205645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-2	W-151102-TB-ME	Total/NA	Water	WI-DRO	205085
LCS 240-205085/3-A	Lab Control Sample	Total/NA	Water	WI-DRO	205085
LCSD 240-205085/4-A	Lab Control Sample Dup	Total/NA	Water	WI-DRO	205085
MB 240-205085/2-A	Method Blank	Total/NA	Water	WI-DRO	205085

TestAmerica Canton

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Client Sample ID: W-151102-TB-MI

Date Collected: 11/02/15 13:20

Date Received: 11/03/15 09:20

Lab Sample ID: 240-57385-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			159325	11/04/15 17:10	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	159715	11/10/15 06:47	JMO	TAL PIT

Client Sample ID: W-151102-TB-ME

Date Collected: 11/02/15 13:30

Date Received: 11/03/15 09:20

Lab Sample ID: 240-57385-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			205133	11/04/15 09:00	CS	TAL CAN
Total/NA	Analysis	8270C		1	205735	11/08/15 00:15	JMG	TAL CAN
Total/NA	Prep	8151A			159325	11/04/15 17:10	CBY	TAL PIT
Total/NA	Analysis	8151A		4	159715	11/09/15 12:19	JMO	TAL PIT
Total/NA	Prep	3520C			205085	11/04/15 06:41	SDE	TAL CAN
Total/NA	Analysis	WI-DRO		1	205645	11/06/15 18:04	DEB	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Certification Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Laboratory: TestAmerica Canton

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



240-57385 Chain of Custody



**CONESTOGA-ROVERS
& ASSOCIATES**

CHAIN OF CUSTODY RECORD

1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112 United States
Phone: (651) 639-0913 Fax: (651) 639-0923

COC NO.: **SP-01651**
PAGE 1 OF 1
(See Reverse Side for Instructions)

Project No/Phase/Task Code: 086165-02-		Laboratory Name: TEST AMERICA		Lab Location: NORTH (Amn)		SSOW ID:	
Project Name: PENTAGON		Lab Contact:		Lab Quote No:		Cooler No:	
Project Location: S. REN, WI		Container Quantity & Preservation:		Analysis Requested (See Back of COC for Definitions)		Carrier:	
Chemistry Contact: GRANT.ANDERSON@GHD.COM		Sample Type		Total Containers/Sample		Airbill No:	
Sampler(s): T.M. BRAND		(see back of COC)		Other:		Date Shipped:	
SAMPLE IDENTIFICATION (Containers for each sample may be combined on one line)		DATE (mm/dd/yyyy)		TIME (hh:mm)		COMMENTS/ SPECIAL INSTRUCTIONS:	
Item							
1	W-151602-TB-ME	11/2/15	1320	W G 2			
2	W-151102-TB-ME	11/2/15	1330	W G 4 2			
3							
Page 18 of 20							

TAT Required in business days (use separate COCs for different TATs): <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3 Days <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week <input checked="" type="checkbox"/> Other: STANDARD		Total Number of Containers: 8		Notes/ Special Requirements:			
All Samples in Cooler must be on COC							
RELINQUISHED BY T.M. BRAND	COMPANY GHD	DATE 11/2/15	TIME 1630	RECEIVED BY [Signature]	COMPANY TA	DATE 11-3-15	TIME 920
1. 11/10/2015							
2.							
3.							

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT - ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE - Fully Executed Copy (CRA)

YELLOW - Receiving Laboratory Copy

PINK - Shipper

GOLDENROD - Sampling Crew

CRA Form: COC-10A (20110804)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-57385-1

Login Number: 57385

List Number: 2

Creator: Lonzo, Michael A

List Source: TestAmerica Pittsburgh

List Creation: 11/04/15 05:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-57386-1

Client Project/Site: 86165-02-01, Penta Wood

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

11/11/2015 8:34:11 AM

Denise Heckler, Project Manager II

(330)966-9477

denise.heckler@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Method Summary	5
Sample Summary	6
Detection Summary	7
Client Sample Results	8
Surrogate Summary	9
QC Sample Results	10
QC Association Summary	11
Lab Chronicle	12
Certification Summary	13
Chain of Custody	14
Receipt Checklists	17



Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Job ID: 240-57386-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: GHD Services Inc.

Project: 86165-02-01, Penta Wood

Report Number: 240-57386-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 11/03/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.8 C.

CHLORINATED HERBICIDES

Sample W-151102-TB-BG (240-57386-1) was analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 11/04/2015 and analyzed on 11/09/2015.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Method	Method Description	Protocol	Laboratory
8151A	Herbicides (GC)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Sample Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-57386-1	W-151102-TB-BG	Water	11/02/15 13:40	11/03/15 09:20

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

Detection Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Client Sample ID: W-151102-TB-BG

Lab Sample ID: 240-57386-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	2.7		0.097	0.015	ug/L	4		8151A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Client Sample ID: W-151102-TB-BG

Lab Sample ID: 240-57386-1

Date Collected: 11/02/15 13:40

Matrix: Water

Date Received: 11/03/15 09:20

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	2.7		0.097	0.015	ug/L		11/04/15 17:10	11/09/15 13:07	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	85		32 - 140				11/04/15 17:10	11/09/15 13:07	4

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	DCPA1 (32-140)	DCPA2 (32-140)
240-57386-1	W-151102-TB-BG	85	77
LCS 180-159325/2-A	Lab Control Sample	91	
LCSD 180-159325/3-A	Lab Control Sample Dup	96	
MB 180-159325/1-A	Method Blank	69	
MB 180-159325/1-A	Method Blank	77	

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

QC Sample Results

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 180-159325/1-A

Matrix: Water

Analysis Batch: 159715

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 159325

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L	-	11/04/15 17:10	11/09/15 11:08	4
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	69		32 - 140				11/04/15 17:10	11/09/15 11:08	4

Lab Sample ID: MB 180-159325/1-A

Matrix: Water

Analysis Batch: 159715

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 159325

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.078		0.50	0.078	ug/L	-	11/04/15 17:10	11/09/15 11:55	20
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	77		32 - 140				11/04/15 17:10	11/09/15 11:55	20

Lab Sample ID: LCS 180-159325/2-A

Matrix: Water

Analysis Batch: 159715

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 159325

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	5.00	4.82		ug/L	-	96	40 - 140
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4-Dichlorophenylacetic acid	91		32 - 140				

Lab Sample ID: LCSD 180-159325/3-A

Matrix: Water

Analysis Batch: 159715

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 159325

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Pentachlorophenol	5.00	5.63		ug/L	-	113	40 - 140	15	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4-Dichlorophenylacetic acid	96		32 - 140						

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

GC Semi VOA

Prep Batch: 159325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57386-1	W-151102-TB-BG	Total/NA	Water	8151A	
LCS 180-159325/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-159325/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 159715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57386-1	W-151102-TB-BG	Total/NA	Water	8151A	159325
LCS 180-159325/2-A	Lab Control Sample	Total/NA	Water	8151A	159325
LCSD 180-159325/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	159325
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	159325
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	159325

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Client Sample ID: W-151102-TB-BG

Date Collected: 11/02/15 13:40

Date Received: 11/03/15 09:20

Lab Sample ID: 240-57386-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			159325	11/04/15 17:10	CBY	TAL PIT
Total/NA	Analysis	8151A		4	159715	11/09/15 13:07	JMO	TAL PIT

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Certification Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Laboratory: TestAmerica Canton

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



240-57386 Chain of Custody



**CONESTOGA-ROVERS
& ASSOCIATES**

CHAIN OF CUSTODY RECORD

1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112 United States
Phone: (651) 639-0913 Fax: (651) 639-0923

371638

COC NO.: SP-01652

PAGE 1 OF 1

(See Reverse Side for Instructions)

Project No/Phase/Task Code: 086165-02		Laboratory Name: TEST AMERICA		Lab Location: N. Canton, OH		SSOW ID:	
Project Name: Penta Wago		Lab Contact:		Lab Quote No:		Cooler No:	
Project Location: S. Ren, WI		SAMPLE TYPE		CONTAINER QUANTITY & PRESERVATION		ANALYSIS REQUESTED (See Back of COC for Definitions)	
Chemistry Contact: G. RAY. ANDERSON@GHD.COM		Matrix Code (see back of COC)		Unpreserved		Hydrochloric Acid (HCl)	
Sampler(s): W-151102-TS-BG T. BEAN		Grab (g) or Comp (c)		Nitric Acid (HNO ₃)		Sulfuric Acid (H ₂ SO ₄)	
		Sodium Hydroxide (NaOH)		Methanol/Water (Soil VOC)		EnCores 3x5-g, 1x25-g	
		Other:		Total Containers/Sample		MS/MSD Request	
SAMPLE IDENTIFICATION (Containers for each sample may be combined on one line)		DATE (mm/dd/yy)		TIME (hh:mm)		COMMENTS/ SPECIAL INSTRUCTIONS:	
1 W-151102-TS-BG		11/2/15		1340 W			
2							
3							
Page 15 of 17							
8							
9							
10							
11							
12							
13							
14							
15							

TAT Required in business days (use separate COCs for different TATs):		Total Number of Containers: 2		Notes/ Special Requirements:	
<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3 Days <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week		All Samples in Cooler must be on COC			
RELINQUISHED BY		DATE		RECEIVED BY	
T. M. BEAN		11/2/15		GHD	
1		1		1	
14/11/2015					

Distribution:		WHITE -- Fully Executed Copy (CRA)		YELLOW -- Receiving Laboratory Copy		PINK -- Shipper		GOLDENROD -- Sampling Crew		CRA Form: COC-10A (20110804)	
---------------	--	------------------------------------	--	-------------------------------------	--	-----------------	--	----------------------------	--	------------------------------	--

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-57386-1

Login Number: 57386

List Number: 2

Creator: Lonzo, Michael A

List Source: TestAmerica Pittsburgh

List Creation: 11/04/15 05:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-57811-1

Client Project/Site: 86165-02-01, Penta Wood

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

11/20/2015 9:43:32 AM

Denise Heckler, Project Manager II

(330)966-9477

denise.heckler@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Method Summary	5
Sample Summary	6
Detection Summary	7
Client Sample Results	8
Surrogate Summary	9
QC Sample Results	10
QC Association Summary	11
Lab Chronicle	12
Certification Summary	13
Chain of Custody	14
Receipt Checklists	17

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
[^] C	CCV Recovery is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Job ID: 240-57811-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: GHD Services Inc.

Project: 86165-02-01, Penta Wood

Report Number: 240-57811-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 11/12/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.2 C.

CHLORINATED HERBICIDES

Sample W-151110-PS-WE (240-57811-1) was analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 11/14/2015 and analyzed on 11/18/2015.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

Pentachlorophenol exceeded the RPD limit for LCSD 180-160497/3-A.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 180-160497.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Method	Method Description	Protocol	Laboratory
8151A	Herbicides (GC)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Sample Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-57811-1	W-151110-PS-WE	Water	11/10/15 13:30	11/12/15 09:15

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

Detection Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Client Sample ID: W-151110-PS-WE

Lab Sample ID: 240-57811-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.047	J *	0.094	0.015	ug/L	4		8151A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Client Sample ID: W-151110-PS-WE

Lab Sample ID: 240-57811-1

Date Collected: 11/10/15 13:30

Matrix: Water

Date Received: 11/12/15 09:15

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.047	J *	0.094	0.015	ug/L	-	11/14/15 10:30	11/18/15 18:23	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	62	^c	32 - 140				11/14/15 10:30	11/18/15 18:23	4

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1 (32-140)
240-57811-1	W-151110-PS-WE	62 ^c
LCSD 180-160497/3-A	Lab Control Sample Dup	102

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA2 (32-140)
LCS 180-160497/2-A	Lab Control Sample	79
MB 180-160497/1-A	Method Blank	44
MB 180-160497/1-A	Method Blank	55

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

QC Sample Results

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 180-160497/1-A

Matrix: Water

Analysis Batch: 160918

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 160497

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.078		0.50	0.078	ug/L	-	11/14/15 10:30	11/18/15 16:23	20
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	55		32 - 140				11/14/15 10:30	11/18/15 16:23	20

Lab Sample ID: MB 180-160497/1-A

Matrix: Water

Analysis Batch: 160918

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 160497

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L	-	11/14/15 10:30	11/18/15 17:59	4
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	44		32 - 140				11/14/15 10:30	11/18/15 17:59	4

Lab Sample ID: LCS 180-160497/2-A

Matrix: Water

Analysis Batch: 160918

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 160497

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	5.00	4.55		ug/L	-	91	40 - 140
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4-Dichlorophenylacetic acid	79		32 - 140				

Lab Sample ID: LCSD 180-160497/3-A

Matrix: Water

Analysis Batch: 160918

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 160497

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Pentachlorophenol	5.00	6.89	*	ug/L	-	138	40 - 140	41	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4-Dichlorophenylacetic acid	102		32 - 140						

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

GC Semi VOA

Prep Batch: 160497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57811-1	W-151110-PS-WE	Total/NA	Water	8151A	
LCS 180-160497/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-160497/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-160497/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 160918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57811-1	W-151110-PS-WE	Total/NA	Water	8151A	160497
LCS 180-160497/2-A	Lab Control Sample	Total/NA	Water	8151A	160497
LCSD 180-160497/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	160497
MB 180-160497/1-A	Method Blank	Total/NA	Water	8151A	160497
MB 180-160497/1-A	Method Blank	Total/NA	Water	8151A	160497

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Client Sample ID: W-151110-PS-WE

Lab Sample ID: 240-57811-1

Date Collected: 11/10/15 13:30

Matrix: Water

Date Received: 11/12/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			160497	11/14/15 10:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	160918	11/18/15 18:23	JMO	TAL PIT

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Certification Summary

Client: GHD Services Inc.
Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Laboratory: TestAmerica Canton

The certifications listed below are applicable to this report.

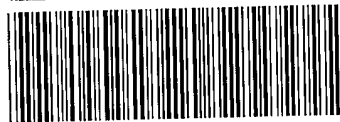
Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

**CHAIN OF CUSTODY
AND
RECEIVING DOCUMENTS**



240-57811 Chain of Custody

North Canton, OH 44720
Phone: 330.497.9396 Fax:

Phone: 330.497.9396 Fax: 330.497.0772

Regulatory Program:

☐ RCRA ☒ Other:

0

ITAL-8210 (0713)

[illegible]

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-57811-1

Login Number: 57811

List Number: 2

Creator: Lonzo, Michael A

List Source: TestAmerica Pittsburgh

List Creation: 11/13/15 02:21 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-58034-1

Client Project/Site: 86165-02-07, Penta Wood

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

11/24/2015 4:06:19 PM

Denise Heckler, Project Manager II

(330)966-9477

denise.heckler@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Method Summary	5
Sample Summary	6
Detection Summary	7
Client Sample Results	8
Surrogate Summary	9
QC Sample Results	10
QC Association Summary	11
Lab Chronicle	12
Certification Summary	13
Chain of Custody	14
Receipt Checklists	17



Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
^a c	CCV Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Job ID: 240-58034-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: GHD Services Inc.

Project: 86165-02-07, Penta Wood

Report Number: 240-58034-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 11/18/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.6 C.

CHLORINATED HERBICIDES

Sample W-151117-TB-WE (240-58034-1) was analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 11/19/2015 and analyzed on 11/20/2015.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 180-161120.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Method	Method Description	Protocol	Laboratory
8151A	Herbicides (GC)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Sample Summary

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-58034-1	W-151117-TB-WE	Water	11/17/15 14:30	11/18/15 10:00

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

Detection Summary

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Client Sample ID: W-151117-TB-WE

Lab Sample ID: 240-58034-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.16		0.096	0.015	ug/L	4		8151A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Client Sample ID: W-151117-TB-WE

Lab Sample ID: 240-58034-1

Date Collected: 11/17/15 14:30

Matrix: Water

Date Received: 11/18/15 10:00

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.16		0.096	0.015	ug/L	-	11/19/15 16:00	11/20/15 21:42	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	97	^c	32 - 140				11/19/15 16:00	11/20/15 21:42	4

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	DCPA1 (32-140)	DCPA2 (32-140)
240-58034-1	W-151117-TB-WE	97 ^c	91
LCS 180-161120/2-A	Lab Control Sample	82	80
LCSD 180-161120/3-A	Lab Control Sample Dup	89	87
MB 180-161120/1-A	Method Blank	82	84
Surrogate Legend			
DCPA = 2,4-Dichlorophenylacetic acid			

QC Sample Results

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 180-161120/1-A

Matrix: Water

Analysis Batch: 161161

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 161120

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L	-	11/19/15 16:00	11/20/15 21:18	4
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	84		32 - 140				11/19/15 16:00	11/20/15 21:18	4

Lab Sample ID: LCS 180-161120/2-A

Matrix: Water

Analysis Batch: 161161

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 161120

Analyte		Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Pentachlorophenol		5.00	4.32		ug/L	-	86	40 - 140	
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
2,4-Dichlorophenylacetic acid	82		32 - 140						

Lab Sample ID: LCSD 180-161120/3-A

Matrix: Water

Analysis Batch: 161161

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 161120

Analyte		Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol		5.00	5.22		ug/L	-	104	40 - 140	19	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits							
2,4-Dichlorophenylacetic acid	89		32 - 140							

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

GC Semi VOA

Prep Batch: 161120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-58034-1	W-151117-TB-WE	Total/NA	Water	8151A	
LCS 180-161120/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-161120/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-161120/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 161161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-58034-1	W-151117-TB-WE	Total/NA	Water	8151A	161120
LCS 180-161120/2-A	Lab Control Sample	Total/NA	Water	8151A	161120
LCSD 180-161120/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	161120
MB 180-161120/1-A	Method Blank	Total/NA	Water	8151A	161120

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Client Sample ID: W-151117-TB-WE

Lab Sample ID: 240-58034-1

Date Collected: 11/17/15 14:30

Matrix: Water

Date Received: 11/18/15 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			161120	11/19/15 16:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	161161	11/20/15 21:42	JMO	TAL PIT

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Certification Summary

Client: GHD Services Inc.
Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Laboratory: TestAmerica Canton

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

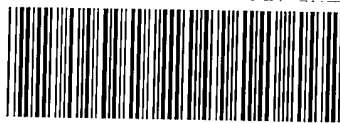
Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



240-58034 Chain of Custody



**CONESTOGA-ROVERS
& ASSOCIATES**

CHAIN OF CUSTODY RECORD

1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112 United States
Phone: (651) 639-0913 Fax: (651) 639-0923

COC NO.: **SP-01653**
PAGE **1** OF **1**
(See Reverse Side for Instructions)

Project No/Phase/Task Code: 086165-02-07		Laboratory Name: TEST AMERICA		Lab Location: N. CANON		SSOW ID:	
Project Name: PENTAWOOD		Lab Contact:		Lab Quote No:		Cooler No:	
Project Location: SIREN, WI		Container Quantity & Preservation		Analysis Requested (See Back of COC for Definitions)		Carrier:	
Chemistry Contact: G-RAR. Anderson@GHD.com		Sample Type		Total Containers/Sample		Airbill No:	
Sampler(s): T. BRAN		Matrix Code		Other:		Date Shipped:	
SAMPLE IDENTIFICATION (Containers for each sample may be combined on one line)		DATE (mm/dd/yy)		TIME (hh:mm)		MS/MSD Request	
1 W-15117-TB-WE		11/17/15		14:30		2	
2							
3							
Page 15 of 17							
9							
10							
11							
12							
13							
14							
15							
TAT Required in business days (use separate COCs for different TATs):		Total Number of Containers:		Notes/ Special Requirements:			
<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3 Days <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week <input checked="" type="checkbox"/> Other: STANDARD		All Samples in Cooler must be on COC					
RELINQUISHED BY		RECEIVED BY		COMPANY		DATE	
1. Tim Bran		1. Blux		TA		11/18/15	
2.		2.					
3.		3.					
11/24/2015							

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT - ALL FIELDS MUST BE COMPLETED ACCURATELY



Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-58034-1

Login Number: 58034

List Number: 2

Creator: Lonzo, Michael A

List Source: TestAmerica Pittsburgh

List Creation: 11/19/15 01:36 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	